

Remarks

Further to the suspension of action requested on December 22, 2003, resumption of examination on the merits is now respectfully requested. Favorable consideration and allowance of the subject application are respectfully solicited.

Claims 1-44 are now pending in the application, with Claims 1, 12 and 23 being independent. Claims 1, 7, 12, 18, 23, 36, 38 and 40 have been amended and Claims 42-44 have been added herein.

In the final Office Action dated July 21, 2003, many of the pending claims were rejected. In particular, Claims 1-3, 7, 11-14, 18, 22-27, 29-32 and 34-41 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,497,174 (Stephany et al.) in view of U.S. Patent No. 6,189,993 (Mantell). Claims 6 and 17 were rejected under § 103 as being unpatentable over Stephany et al. in view of Mantell and further in view of U.S. Patent No. 6,183,056 (Corrigan et al.). Claims 4, 5, 10, 15, 16 and 21 were rejected under § 103 as being unpatentable over Stephany et al. in view of Mantell and further in view of European Patent Application No. 0 626 266 (Nagoshi et al.). Claims 8 and 19 were rejected under § 103 as being unpatentable over Stephany et al. in view of Mantell and further in view of U.S. Patent No. 5,223,853 (Wysocki et al.). Claims 9 and 20 were rejected under § 103 as being unpatentable over Stephany et al. in view of Mantell and further in view of U.S. Patent No. 5,289,207 (Ebisawa). Claims 28 and 33 were rejected under § 103 as being unpatentable over Stephany et al. in view of Mantell and further in view of U.S. Patent No. 5,610,638 (Courtney).

However, the pending claims are believed to be allowable over the citations of record for the following reasons.

In the apparatus, method and memory of the pending claims, a first driving pulse control (a determination of a fundamental pulse shape) for improving discharge stability and a second driving pulse control (controlling a driving pulse by changing a modulation amount of a pulse width) for heater durability can be performed separately. That is, the first driving pulse control can determine a fundamental pulse shape having a pulse width selected from a plurality of pulse widths on the basis of a condition of the printhead, while the second driving pulse control can generate a driving pulse for the printhead. As claimed, the driving pulses are pulses generated by changing a modulation amount of a pulse width for the number of simultaneously driven printing elements on the basis of the pulse width of the fundamental pulse shape.

In order to compensate for the influence of voltage drop due to the number of simultaneously driven printing elements, a pulse width of the fundamental pulse shape from a plurality of pulse widths can be determined based on the condition of the printhead and then a final driving pulse to be applied to the printhead can be generated by changing a modulation amount of the pulse width for the number of simultaneously driven printing elements on the basis of the pulse width of the fundamental pulse shape.

Stephany et al. describes an ink jet printer that sets a driving pulse width by look-up tables contained in ROM1 46. In the embodiment of Fig. 4, three parameters are input into ROM1 46 to determine the pulse width and these parameters include a 2-bit word from ROM2 44 representing the number of heater elements to be fired, the count of

counter 56 representing the relative position on the printhead of the heater elements to be fired and printhead temperature from thermistor 60.

However, Stephany et al. is not believed to disclose or suggest at least generating a driving pulse by changing a modulation amount of a pulse width for a counted number of simultaneously driven printing elements on the basis of the pulse width of a determined fundamental pulse shape, as is recited in independent Claims 1, 12 and 23.

Thus, Stephany et al. fails to disclose or suggest important features of the present invention recited in the independent claims.

In the ink jet printer of Mantell, a user can select from one of a plurality of print quality modes and one of a plurality of media types. That is, Mantell discloses a user interface for enabling selection of print qualities and media types. Mantell is not believed to remedy the deficiencies of Stephany et al. noted above with respect to the independent claims.

The remaining citations have also been reviewed, but are not believed to remedy the deficiencies of the citations noted above with respect to the independent claims.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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